REMARKS

In the Office Action of October 6, 2005 Claims 1-24 were pending for consideration. Each of these claims was rejected under 35 U.S.C. 103(a) as allegedly obvious over U.S. Pat. No. 3,179,979 (hereinafter "Bundy") in view of U.S. Pat. No. 5,772,756 (hereinafter "Davies"). Furthermore, each of these claims was provisionally rejected under the doctrine of Obviousness-type Double Patenting, in view of Applicant's copending U.S. Patent Application Serial No. 10/757,715 in view of Davies. Each of these rejections will be addressed in turn below.

Rejection Under 35 U.S.C. § 103

The Examiner has rejected claims 1-24 under 35 U.S.C. 103(a) as allegedly obvious over Bundy in view of Davies. Applicant does not deem it necessary to recited the entire case law standard required in order to establish a *prima facie* case of obviousness. However, Applicant, would like to briefly remind the Examiner of the required three criteria for a *prima facie* case of obviousness, namely that the asserted references as modified or combined must: 1) teach or suggest each and every element of the claimed invention; 2) provide sufficient motivation for the modification or combination asserted; and 3) provide a sufficient likelihood of successfully making the modification or combination.

The Present Invention

Claim 1 of the present invention recites a high pressure system, comprising a high pressure apparatus including:

a) a plurality of pressure members configured to form a high pressure volume; and

b) a first high pressure reaction assembly configured for placement in the high pressure volume, said reaction assembly comprising:

i) a first catalyst layer having a crystal growth surface and a raw material flux surface;

ii) at least one crystalline seed contacting the catalyst layer; and

iii) a raw material layer adjacent the raw material flux surface of the first catalyst layer, the raw material layer being configured to allow raw material to diffuse into the catalyst layer along a bulk raw material diffusion direction that is oriented substantially perpendicular to gravity during application of high pressure.

Bundy

Bundy teaches the use of a high pressure die assembly utilized in a high pressure apparatus. See col. 1, lines 8-11. As noted by the Examiner, the assembly includes die segments, anvils, a plurality of piston cylinder, force members, and ram segments. See page 2, paragraph 3, Office Action. The Examiner also mistakenly claims that the cavity (12) is horizontally orientated. See page 2, paragraph 3, Office Action. However, Bundy does not disclose any orientation. Bundy merely discloses an "opening **12** to compress a specimen therein." See col. 2, lines 29-30. "Thus, the opening may be varied in shape to accommodate different shaped punches. . ." See col. 2, lines 32-33. Nothing in the text portion of the Bundy specification teaches or suggests that the cavity (12) can be oriented horizontally. As a result, Applicant assumes that the Examiner has made this conclusion with respect to orientation of the cavity based on the presentation of the device in Fig. 1. However, col. 2, lines 6-10 clarifies that Fig. 1 is a "top sectional view" of one embodiment of the invention. In other words, Fig. 1 is a view looking down at the top of the disclosed apparatus. As a result, when considered in three dimensions, the cavity (12) would not be oriented horizontally, but rather, vertically.

Even assuming *arguendo* that the Bundy reference did teach or suggest a horizontally oriented cavity (12), Bundy is totally silent as to the types or arrangement of materials to be included within cavity (12). Nowhere in the specification is any specific material mentioned, nor whether a plurality of materials can be used. Neither does the specification teach or suggest any type of arrangement for more than one material to be placed into cavity (12) and subjected to high pressure using the disclosed device.

Davies

Davies teaches a method of producing diamond crystal growth on a seed crystal along certain crystallographic planes in order to produce diamonds with a specific aspect ratio. See col. 1, lines 39-55. As noted by the Examiner, the method comprises crystal seeds, a metallic catalyst/solvent, and a high pressure, high temperature chamber. See page 3, Office Action. Specifically Davies emphasizes the orientation of diamond seed crystals with respect to a seed pad (16) upon which the seed crystals rest in order to achieve growth on the desired re-entrant surfaces of the seed crystals. Nothing in Davies teaches or suggests configuring a raw material layer so that it diffuses into a catalyst layer in a diffusion direction that is substantially

perpendicular to gravity. In fact, Davies teaches the exact opposite, that the catalyst layers (18) and (22) are layered above and below the graphite layer (20), and that this entire assembly is placed on top of the seed pad (16) which contains a plurality of diamond seeds (24). The three dimensional orientation of the assembly is clear from the Figs. 1 and 2 in connection with col. 2, lines 15-20 of the specification which states that the sectional views provided are side and front views respectively. Accordingly, the movement of graphite (20) into the catalyst layers (18) and (20) would have to be vertical (i.e. parallel to the direction of gravity).

Bundy in view of Davies

The Examiner has rejected claims 1-24 as allegedly obvious over Bundy in view of Davies. However, as illustrated by the foregoing, this combination of references fails to teach or suggest each and every element of the present invention as set forth in Claim 1. Most particularly, Claim 1 requires that the materials to be subjected to high pressure by the system be oriented and configured in a manner such that the diffusion direction of the raw material layer is orientated substantially perpendicular to gravity. By contrast, as noted above, Bundy is silent on the arrangement of materials in the cavity (12), and cavity (12) is in fact, oriented vertically, rather than horizontally as asserted by the Examiner. Further, Davies teaches diamond synthesis with a reaction chamber and arrangement of elements in the chamber that causes diffusion of graphite into a catalyst layer in a direction that is parallel to gravity. See col. 3, lines 35-39, Figs. 1 and 2. Therefore, Davies clearly does not teach the materials orientation required by the system of the present invention.

In view of the fact that Bundy and Davies fails to teach or suggest each and every element of Claim 1, Applicant submits that the rejection does not establish a *prima facie* case of obviousness, and is improper. As Claims 2-24 all depend from Claim 1, neither is the rejection proper against these claims. As a result, Applicant respectfully requests that the rejection be withdrawn.

Double Patenting

The Examiner has provisionally rejected Claims 1-24 under the judicially created doctrine of double patenting over Applicant's copending U.S. Patent Application serial no. 10/757,715 in view of Davies. Without conceding the correctness of the rejection and

for the sole purpose of advancing prosecution in the present application, Applicant has enclosed herewith is a terminal disclaimer disclaiming the terminal portion of any patent issuing from the present application which extends beyond that of any patent to issue from U.S. Patent Application serial no. 10/757,715. Applicant submits that such terminal disclaimer renders the issue of double patenting moot and therefore requests that the rejection be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe that claims 1-24 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone the undersigned attorney, or in his absence, Mr. M. Wayne Western, at (801) 566-6633, so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 20-0100.

Dated this 6th day of January, 2006.

Respectfully submitted,

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